

STANFORD UNIVERSITY MEDICAL CENTER

DEPARTMENT OF GENETICS

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COPY

Mr. Forrest R. Frank
Subcommittee on International Security
and Scientific Affairs
Congress of the United States
Committee on International Relations
House of Representatives
Washington, D.C. 20515

Dear Forrest,

Well, I am glad to see where you are now located, and I thank you for thinking of me in connection with the legislation that you were contemplating.

As far as I can see, the main problems in implementing the BW Convention stem from the obvious asymmetry of public exposure of military technology in the major countries. The Russians have, of course, indicated that they will abide by the Convention as of the time it went into force, but they have, as far as I know - and please correct me if you know otherwise -, made no disclosures of any step whatsoever that they may have undertaken in implementing it. It is possible, as some people believe, that the Soviets never had a BW program of any kind whatsoever - which would match the lack of any public information about it - but that does not seem to me a very reasonable presumption. However, it is not very obvious what your committee would be able to do about that, though I think it is something you really do have to keep in mind in contemplating necessary legislative steps.

Although I was quite astonished at the very large scope of the Army trials with BW simulants in the 1950's, it does appear to be quite unlikely that any actual harm was done in the actual event. I have been looking into ways by which it might be possible to test allegations to the contrary. One point that Senator Schweiker may need to be informed about is the very heavy and diversified bacterial load in the atmosphere of the New York City subway system, or other closed places, that is simply the result of human exhalations - and I guess if I had to take my choice between the bugs likely to be found there and the ones that the Army used in its experiments, I would unhesitatingly choose the latter. This is not to say that people should be submitted to a choice involuntarily.

With respect to legislation on making the use of biological agents a federal crime, my first reaction was applause. There is as much reason to be concerned about terrorist threats from environmental contamination with bugs or poisons as from explosives. However, this has not in fact materialized on any significant scale, and it is just possible that public hearings designed to explore those contingencies might have exactly the opposite of the intended effect, just by calling attention to these gruesome possibilities. So, on balance I would be inclined to let the present law take care of the situation, but be prepared to move quickly if unhappily public attention is aroused by some dramatic incident. In that circumstance, I think that on the one hand, to be useful, the law will have to go as far as is constitutionally appropriate with respect to conspiracy and possession with malicious intent; at the same time, it will have to be drawn very carefully on account of the technicality of the situations that can be foreseen. How would you

classify the crime of a person who carelessly, or with varying degrees of mischief or malice, transgresses the sanitary regulations of a watershed with respect to activities like swimming, urination, defecation.....

In specific circumstances these can pose a threat of a rigor quite comparable to that of a person hurling a grenade. People who are carriers of infectious viruses - like the classical typhoid Mary - may likewise expose their compatriots to real harm with varying degrees of intended malice. If you catch a cold from a trespasser, should that become a federal crime? Would the use of microorganisms, e.g. by inhumation, to destroy evidence become a federal crime under this heading? Presumably one would have to ascertain a knowing and malicious intent to inflict damage through a biological agent, but I think these examples show how difficult it will be to draw a line between the sanitary code and the criminal one. This is not to minimize the potential danger: the sabotage of a public water supply is one of my nightmares.

I would caution, however, against including toxins in any law of this kind. There were some pragmatic rather than scientific reasons to lump toxins together with biological agents in the BW Convention: they had to do with the verifiability of a production plant. I do not see any analogue to that in the civil context and there really is no clearly tenable scientific boundary between toxins and other poisons. For example, alcohol is a by-product of microbial fermentation which has toxic effects on the central nervous system, and you would have to explicitly write it out of a law unless you intended to include it as well. On the other hand, one could imagine trying to encompass a broader range of civilian CW: specifically with threats against the public health and safety, the most urgent example of which is again the public water supply.

With respect to the international transfer of recombinant DNA, I think the places to leave that subject are in the international postal regulations with respect to the carriage of potentially hazardous substances, and the guidelines for the regulation of research laboratories. There are problems that have not really surfaced properly on attempting to build a legal as opposed to a general regulatory framework for managing the hazards that are allegedly associated with recombinant DNA. From a legal standpoint, the chief problem is that with very few exceptions there is no analytical test that is likely to be useful to determine whether a given substance or specimen is or is not recombinant DNA. The expression "recombinant DNA" refers to a particular method for producing certain DNA sequences. Once these have been generated, it may or may not be possible to recognize them. And in the vast majority of circumstances, these sequences will be both completely harmless, and impossible to prove that they have any toxicity or any harmful capability. The concerns that have been expressed in this area have to do with the mischance that among the multitude of combinations that might be produced in laboratory experiments some might occur that do indeed have harmful potentialities. This is a problematical situation which has never yet been demonstrated. I do not need here to argue the merits of regulating such research; but you can see that there would be great difficulty in further legal steps that would address the substances themselves.

An analogue to this would be an effort to pass a law that would make it illegal to transfer a substance that had been produced in such a way that by chance it might have generated a harmful toxin; but which in the vast majority of circumstances produces material with no significant biological action whatever. Live microorganisms must already be identified at ports of entry under present law, and I believe that the regulations of the public health service and of the U.S. Department of Agriculture are the appropriate way to deal with any problems that may be foreseen in this

arena.

To return to the BW Convention, I guess that it does take some specific legal action to make a violation of its terms a crime under United States law. Rather than single this out, I wonder if it is not time to consider a blanket law, comparable to the civil rights acts of the last century, that in fact do make it a crime under federal law for any individual to violate terms of any binding treaty of the United States. There will be some interesting constitutional questions about the legal power of the President and his vulnerability to the judicial authority by any route other than impeachment. The same issues would apply in efforts to draft a law in the penal code to implement the BW Treaty, as for the more general purposes that I now suggest. An equally important step would be to protect the freedom, the acts governing espionage and treason notwithstanding, of any individual who in time of peace divulged the fact that an officer of the United States was acting in violation of a treaty obligation. This could generate some rather sticky questions with respect to the constitutional status of covert actions, and it is conceivable that it would be preferable to provide that immunity to individuals who report such imputed transgressions to specified officers in the Executive and Congressional branches and leave open the question of leaks to the press. There would certainly be no harm in further ventilation of the questions at stake here, and a clarification of this ultimate necessity of exposure might help in the development of sensible rules concerning the protection of information that is classified for valid security reasons.

Sincerely yours,

Joshua Lederberg
Professor of Genetics